

DOCUMENT RESUME

ED 336 445

UD 028 174

AUTHOR Chavers, Dean; Locke, Patricia
TITLE The Effects of Testing on Native Americans.
INSTITUTION Native American Scholarship Fund, Inc., Albuquerque, NM.
SPONS AGENCY National Commission on Testing and Public Policy.
PUB DATE 4 Apr 89
NOTE 54p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS *American Indians; College Entrance Examinations; *Culture Fair Tests; Elementary Secondary Education; High Schools; Native Speakers; Occupational Tests; Racial Bias; Racial Differences; Standardized Tests; *Test Bias; *Test Construction; *Testing Problems; *Test Norms; Test Results

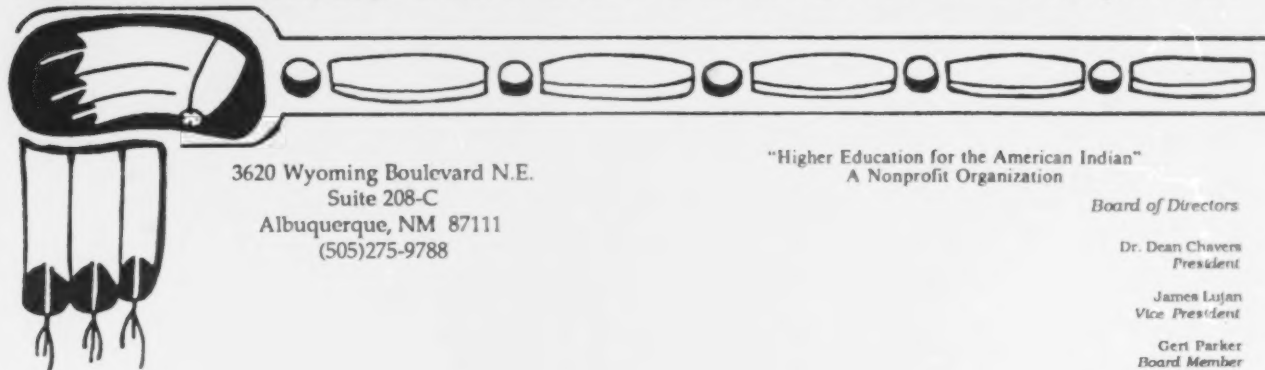
IDENTIFIERS *Testing Effects

ABSTRACT

The effects of testing on Native Americans and the outcomes of test use are discussed. Native Americans are exposed to a wide variety of tests during their lifetimes, in Bureau of Indian Affairs Schools, in high schools, in employment, and for college entrance and placement. Too much reliance can be placed on tests taken by Native American youth because of an absence of other sources of assessment information. Tests developed and normed with majority populations have built-in errors of inconsistency and bias when used with American Indian populations. Testing itself may cause 5% to 15% of the actual variance in test scores for Native Americans, while other real factors cause high dropout rates, unemployment, and lack of training. A major research effort is needed to determine predictors of test outcomes for Native Americans and the extent and types of test bias. Norms appropriate to Native American populations must be developed. The following important factors must be examined relative to test outcomes: (1) reading ability; (2) native language use and levels; (3) time on task; (4) student motivation; (5) socioeconomic status; (6) environmental factors; (7) the test syndrome; (8) native culture; (9) acculturation; (10) late maturation; and (11) race relations. Nine figures, tables, and charts illustrate the discussion. A 46-item list of references is included. (SLD)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

NATIVE AMERICAN SCHOLARSHIP FUND, INC.



3620 Wyoming Boulevard N.E.
Suite 208-C
Albuquerque, NM 87111
(505)275-9788

"Higher Education for the American Indian"
A Nonprofit Organization

Board of Directors

Dr. Dean Chavers
President

James Lujan
Vice President

Gert Parker
Board Member

Jodie Palmer
Treasurer

Bill Schaaf
Board Member

THE EFFECTS OF TESTING ON NATIVE AMERICANS

by

Dean Chavers and Patricia Locke

A paper commissioned by the National Commission
on Testing and Public Policy, April 4, 1989

(c) Copyright, 1989, National Commission on
Testing and Public Policy

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

Dean Chavers
Native AM Scholarship

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

☒ This document has been reproduced as
received from the person or organization
originating it.
☐ Minor changes have been made to improve
reproduction quality.

• Points of view or opinions stated in this docu-
ment do not necessarily represent official
OERI position or policy.

ED336445

VO 028 174

TABLE OF CONTENTS

A.	BACKGROUND	1
1.	Native Populations	1
2.	The Environment of Indian Education	11
B.	TEST USES AND FUNCTIONS	17
C.	THE RESULTS OF TESTING	20
1.	Testing in BIA Schools	21
2.	Testing in High School	22
3.	Testing and Employment	24
4.	College Entrance and Attendance	27
D.	FACTORS RELATED TO TESTING OUTCOMES	30
E.	CONCLUSIONS AND RECOMMENDATIONS	35
	<u>Bibliography</u>	47
	<u>Figures, Tables, and Charts</u>	
1.	The Environment of Indian Education	12
2.	Ganado Unified School District, ITBS and Stanford Test Results	39
3.	Comparative Test Results, Indian Districts in Arizona	40
4.	Distribution of Test Results, Reading, Ninth Grade, Kayenta Unified School District	41
5.	Career Ladder for Education	42
6.	College Enrollment of Native Americans, 1963-86, U. S.	43
7.	The Educational Pipeline for Minorities <u>/Astin/</u>	44
8.	American Indians in the Professions	45
9.	Types of Schools for Indians	46

A. BACKGROUND

1. Native Populations

As the Quincentenary approaches, it seems appropriate to note that the most recent estimate of the pre-Columbian indigenous population of North America was between 90 and 110 million (Martin). By 1900, the U. S. Census reported that there were 250,000 surviving Indians. The 1970 Census reported a total of some 895,000 Native American Indians, and the 1980 Census reported a total of 1.4 million, or an increase of 70% from 1970 to 1980.

The Bureau of Indian Affairs (BIA), in an informal survey of its superintendents in 1989, found a current population of 846,000 tribal members living on or near reservations. The rest of the Indian population is living in cities, in towns, and in rural areas off reservations. The BIA recognizes and serves some 328 tribes in the "lower 48" states, and 247 tribes in Alaska who have political status (Shaw). The problem of counting Indians, which the Census has admitted for 20 years is a major problem, was compounded by a recent change in the definition of Indian.* As a result of this change, the 1990 Census could report a total population of Indians of 2.5 million or more.

Prior to 1492, there were 1,000 to 2,000 Native languages spoken in Indian America. An estimated 400 languages were spoken by people living

* The loosest definition of Indian is self-identification, which the HEGIS and U. S. colleges and universities use; it typically leads to overcounting by up to 200%. The strictest definition is being an enrolled member of a federally-recognized tribe, which may require one-quarter "blood quantum." The Census now uses a definition requiring a person only to be recognized in the community as an Indian. The BIA, by court order, is now required to serve those persons which each tribe determines are its citizens.

The term "Indian" is shorthand for American Indian and Alaska Native nations in this paper.

north of the Rio Grande River. These languages can be grouped into 20 families of related languages, in much the same way that French, Italian, Spanish, and Portugese are members of the Romance (Roman) language family.

Thus there were some 400 separate nations of Indians in the U. S. and Canada, each with differing customs, world views, religions, and languages from all the others. The term "Indian" to Native people often has little meaning. They define themselves as Navajo, or Lakota, or Kiowa. Some 200 of these languages are still spoken in the U. S. now.

The Indian nations are small. Only 38 of the 300 present-day tribes have populations of more than 3,000 members. This means that 280 tribes in the U. S. have populations under 3,000, some of them as small as 14 members. A tribe with 2,000 members is considered a large tribe.

A 1962 study by Chafe found that language fluency is diminishing. Not all of the 200 remaining Native languages exist at a comparable level of fluency. Chafe's data were compiled in terms of a total number of speakers, and the age range of speakers. The data yielded the following matrix:

FOR LANGUAGES WITH	FLUENT SPEAKERS AGE, PREDOMINANTLY		
	OVER 50	OVER 20	ALL AGES
Fewer than 10 speakers	49	0	0
10-100 speakers	24	7	2
100-1,000 speakers	6	29	38
1,000-10,000 speakers	0	6	39
Over 10,000 speakers	0	0	6

On the Navajo Reservation, which is the nation's largest, some 78% of parents of students in the Ganado school district speak either Navajo exclusively in the home, or speak both Navajo and English in the home (Chavers, 1987a).

A 1975 survey defined "bilingual education needs" in the following way: "An Indian child with a bilingual education need is a child with limited English speaking ability who comes from a home where the Indian (or Native) language is the dominant language spoken" (NITRC). The survey found that of the 169,482 Indian children enrolled in BIA schools or schools with Johnson-O'Malley (JOM) funding, some 57,709 students, or 34%, had bilingual education needs. Of these students with needs for bilingual instruction, some 42,454, or 84% of those with bilingual education needs, were not yet receiving bilingual instruction.

Much of the Native population is prolific. Figures from the Fort Defiance Agency of the Indian Health Service (IHS) report 1.8 live births per hundred per year for this Navajo service area. This leads to a doubling of the population every 20.7 years (Chavers, 1987a). This level of population increase, which is double the rate for the U. S., is typical of growth rates for many other tribes.

Indian tribes own 54 million acres of land held in trust by the federal government. The BIA, in its 1988 report to Congress on range and agricultural programs, stated that 33,572 Indian families and organizations earn their living through farming or ranching. An additional 45,000 grow agricultural products as part of a subsistence lifestyle. Fewer than 35% of Indian-owned farmlands are being used by Indians. Indian use of Indian land is limited by the long-term leases which are held by non-Indian farmers, ranchers, miners, and developers. Some of these leases are for periods of 99 years. Thus most Indians are occupants of lands which they do not control. The BIA handles leases on most reservations. (BIA, 1988b)

The National Indian Agriculture Working Group (NIAWG) reported recently that "Indian use of Indian land has dropped off rapidly in recent years, and idle Indian lands have increased at a rate as high as 40% in one year. Hundreds of thousands of acres of Indian lands are in danger of foreclosure through the default of Indian farmers and ranchers." Because there are no Indian students currently receiving BIA higher education scholarships in any natural resource fields, according to the BIA's 1990 budget justification, the NIAWG requested that the Congress set aside 10% of the 1990 scholarship appropriation for the fields of Agricultural Engineering, Animal Husbandry, Animal Science, Biological Sciences, Fishery Management, Forestry, Horticulture, Range Management, Soil Science, Veterinary Science, and Wildlife Biology. (Intertribal)

Ironically, after being assigned to marginal lands during the "Reservation era" of 1867 to 1890, Indians were found in the 1960's and the 1970's to be the "owners" of about one-quarter of the energy resources of the nation. Much of the extraction of these mineral resources enriches the developers and the processors, with little of the benefits going to Indians. The minerals include coal, oil, gas, water, uranium, fish, timber, and geothermal energy.

As early as 1775 the Continental Congress appropriated monies for the education of Indian youth at Dartmouth College. The U. S. signed its first treaty which included provisions for Indian education with the Oneida, Tuscarora, and Stockbridge tribes in 1794. In exchange for the land these tribes occupied, the U. S. promised them they would receive education, medical care, and other basic needs in perpetuity. This act started a trend which lasted until 1871, when Congress stopped signing

treaties with Indian tribes.

In 1802 the Trade and Intercourse Act included the first statutory provision for a federal responsibility for Indian education. By 1842 there were 37 Indian schools operated by the federal government. In 1870 the Congress first appropriated monies for the operation of federal industrial schools. By 1880 there were over 100 BIA boarding schools, mostly in the West. In 1882 legislation was passed to convert abandoned Army forts into Indian schools. In 1890 appropriations were made to cover the costs of the tuition of Indian students attending public schools. In 1892, the first mandatory attendance law for Indians was passed by Congress.

Despite these many laws by Congress, education came late to Indian Country. The main reason was the failure of the Congress to appropriate enough funds to carry out the programs it mandated by law. The delivery of education to Indians did not reach full capacity until the late 1950's. As late as 1955, there were not enough seats in federal Indian schools to accommodate the Indian students who were of school age. Universal education is thus only 30 years old in Indian Country. Despite making education for Indians mandatory as early as 1840, Congress did not appropriate enough funds to carry out the job until the last half of the 1950's.

Education, when it came to Indians, was an outside system imposed on the Indian youth. Indian Country today retains strong traces of ambivalence toward Euro-American education. This ambivalence was fostered by the standard government practices of taking Indian children away from their homes and their parents and placing them several states away in BIA boarding schools. The intention of the government was to eradicate Indian

cultures, to break up the Indian families, and to destroy the tribal "mass." The clear intention of the policy developers and the administrators was to do away with Indian languages, with Indian culture, and with everything that had to do with "Indianness."

Indian students were forbidden to speak their languages at school, and were punished if caught speaking them. Instruction was in English only. Any mention of Indian or tribal history was excised from the curriculum. Schools were run similarly to military institutions. Instruction in the Christian religions was required. Children's traditional hair styles of long hair or braids were sacrificed to require the girls to have short hair and the boys to have crew cuts or shaved heads. The food was prepared English style, with little allowance being made for the inclusion of traditional Native foods in the school diets. Attendance at church was often mandatory. Student behavior had very strict limitations, which were harshly enforced.

The sense of self, or self-worth, and of pride in one's own kind, were often destroyed by a system which was as brutal at brainwashing as any system devised. There are many students in today's Indian schools whose great-grandparents were placed in similar schools in the 1880's or the 1890's. Thus four generations of Indians in most tribes have gone through the BIA monocultural education system.

The Euro-American educational system, and the three other systems for Indians (public schools, mission schools, and contract schools) have not been highly successful. The dropout rate has apparently never been below 50% for high school, which is where it is today. The attempt to brainwash Indians and to suppress all traces of Indianness has not worked

well, because of the tenacity of Indian cultures. The attempt to teach Indians by this externally-imposed education system has not succeeded well enough, as evidenced by the current unemployment rates for reservation Indian adults, which range between 30% and 90%, with a national average of 49%. (See Chart 9 for a description of Indian schools)

There are devastating problems of self-destruction, chemical dependency, addictive and abusive behaviors, and identity crisis which affect Indian Country. According to one expert, suicide rates for Native youth are 280% higher than for U. S. youth in general. (May) He attributes the causes of Indian youth suicides and destructive behavior to be the consequences of prejudice and discrimination, a fractionalized non-Indian school system, a world of unclear and seemingly hostile values, increased levels of acculturation stress, and anxiety over low levels of tribal identity and self-esteem.

De Montigny, a Chippewa physician, states that he thinks contemporary psychology is lagging behind Native knowledge. "Development of Euro-American behavioral study is but six decades old," he wrote in 1972, "and really has developed little understanding of human behavior. Behavioral scientists are only beginning to learn what American Indians knew 30,000 years ago. I. Q. and achievement tests measure vocabulary, but are very inadequate in all other respects. Euro-American literature on behavioral science referring to American Indians is from a small immature knowledge base, consisting of erroneous concepts compounded one on another." (De Montigny)

Michael Dorris, a Modoc parent, educator, and Dartmouth professor, is deeply concerned about the adverse effects that 500 years of coercive

education has had, and is having, on Indian youth. He is convinced that not only Indian students, but future generations of all American school children could benefit from the collective wisdom and the valuable and instructive experience of at least 1,600 generations of Indian people in North America (Dorris).

Test scores for Indian students are low. College attendance rates are very much below par. The mobility of Native populations is very high. The result of the prevailing educational system has been, to a large extent, the development of a framework in which education for Indians is viewed as a "failure." There are few who have high expectations of Indian students. Gifted and talented programs for Indians are almost non-existent. Indian college students are mostly attending public, two year, community colleges, with only a few at the prestigious private universities. Having an Indian in the upper ranks of corporate management in U. S. industry is apparently decades away.

Equated with the lack of excellence in Indian education is a condition of powerlessness. This powerlessness is pervasive. It leads to a lack of ability to get things done. The very fact that there are so few Indians in the population prevents the government from doing anything about conditions in Indian Country except for occasional outbreaks of concern, usually over some attention-grabbing incident. The Bureau of Labor Statistics refuses to try to determine what the unemployment picture is for Indians. State departments of education do not determine what the basic parameters of Indian education are, such as dropout rates, test scores, rates of college attendance, rates of attendance at vocational schools, and numbers of gifted students.

Because the Indian population is small, and because there was for many years no Indian representation in Congress,* the federal government continues to violate treaty provisions and ignore the deplorable conditions in Indian Country. The administration, year after year, fails to seek sufficient appropriations for Indian education and other programs. Indian college students are currently receiving funds to meet only 25% of their needs (BIA, 1989a). The IHS Director, Dr. Everett Rhodes, citing reductions in IHS funds, asked tribal delegates at a March 9, 1989 meeting in Washington "Who will decide which Indians won't receive health care?"

The Indian Education Project of the Education Commission of the States reported in 1980 that the following deficiencies were found in surveys conducted in the states of Alaska, Minnesota, Montana, Oklahoma, and South Dakota on Indian education programs:

- "o Lack of Indian involvement in public school decision-making;
- o Lack of Indian-related curriculum;
- o Lack of Indian teachers and administrators;
- o Inadequate training for teachers of Indian students;
- o Inadequate needs assessments and evaluations of programs serving Indian students;
- o Indian education is a low concern for state legislators;
- o Non-Indian educators, legislators and school board members thought no special counseling efforts were required for Indian students;
- o Indian parents and tribal officials reported a general lack of

* There is one Indian Member of Congress, Ben Nighthorse Campbell, a Northern Cheyenne, elected first in 1986, and re-elected in 1988.

understanding among non-Indian teachers and administrators about the Indian lifestyle; and

- o Indian children believed they were often deliberately excluded from activities, and at the high school level in particular, that non-Indian students discriminated against them."

A recent annotated bibliography of dissertations on Indian education reported that 12 dissertations from 1972 to 1987 had been done in the U. S. on Natives and testing (Davids and Tippeconnic). However, the titles seem to indicate that only seven of the twelve were explanatory research, or theory testing. The others were on such things as applying the WISC-R to Native students.

Probably fewer than five percent of the teachers, principals, counselors, and administrators in Indian schools are Indians. Thus there is a pronounced political weakness even in the local Indian political education community. Most Indians who work in education are bus drivers, cooks, janitors, tutors, secretaries, and aides. As a group, they have very little political power within the school systems.

There has been little useful, useable research done on Indian education, and even less done on explanatory research in the area of testing. This paper will examine the outcomes of the education and testing process, but we can only make guesses or inferences about causation.

2. The Environment of Indian Education

The outcomes for Indian education are affected by factors at the school, in the home, in the community, and of the makeup of the students. These factors as predictors, or variables, have been very little studied. The seven doctoral dissertations mentioned in the previous section were mainly on the validation of WISC, Illinois, and WRAT tests for Indian students.

Figure 1 shows a possible model for the environment of Indian education. This model assumes that the basis for academic ability (shown by testing) for Indian students is their level of mastery of knowledge of facts. This basis is tempered, however, by things other than the level of mastery. The level of mastery is itself tempered by such things as time on task, parent control of children, the challenge presented by teachers in the classroom, the difficulty of materials used in instruction, and the motivation of students. Academic performance is affected by,

Insert Figure 1 about here

or related to, such things, in addition to knowledge, as societal, linguistic, cultural, psychological, and motivational factors.

In one study, the amount of time spent on educational activities in the home was found to be the most strongly correlated variable with test scores of Indian students, out of seven variables tested (Chavers, 1987b). The amount of time parents spent at school was the second strongest variable, family size was third, and attendance was the fourth strongest. The other three variables tested (family stability or lack of movement, parent

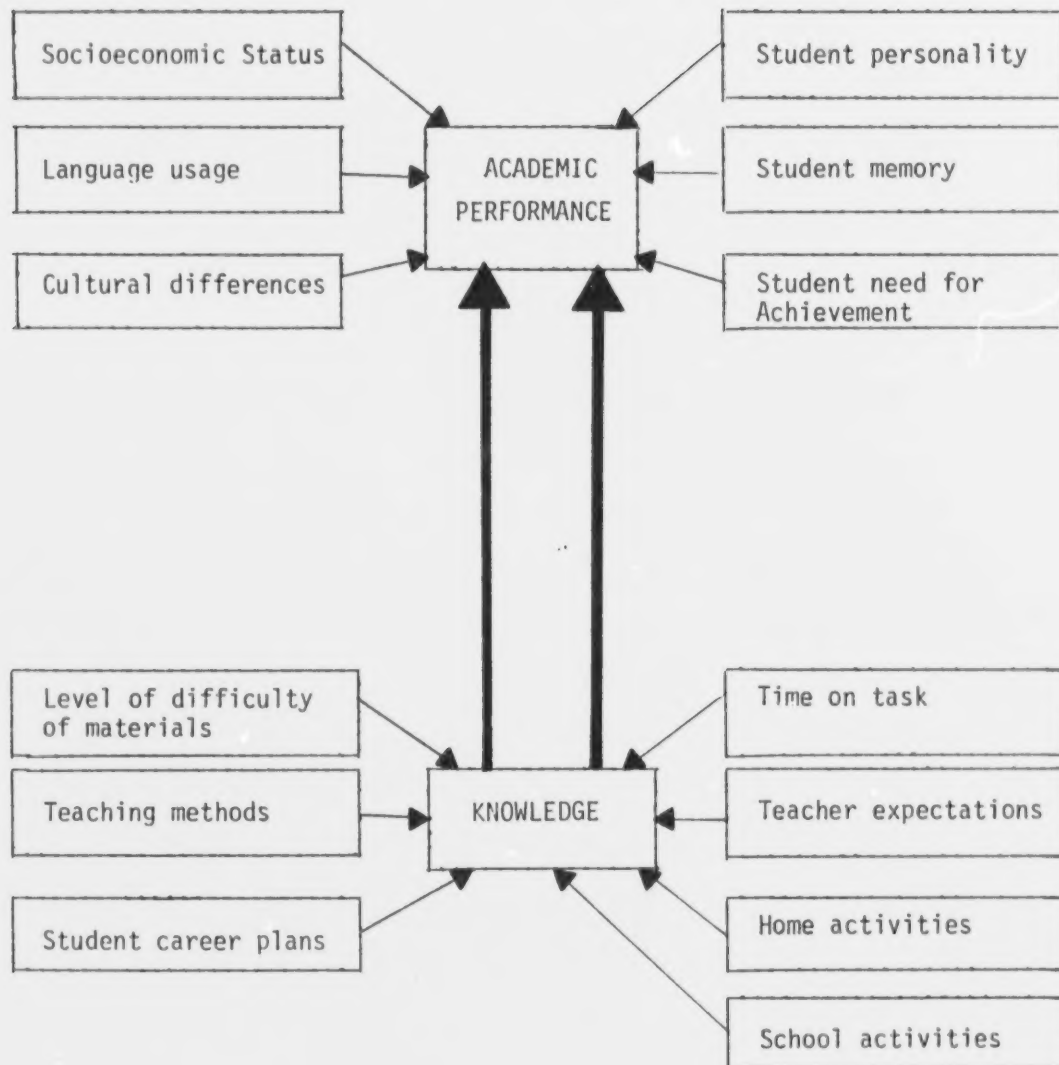


FIGURE 1.

THE ENVIRONMENT OF INDIAN EDUCATION

age, and extracurricular activities) contributed negligible or no amounts to the test scores' variation. The total amount of variation of these seven test variables ranged from a low of 15% for eleventh graders to a high of 41% for eighth graders.

The conclusion from this research would seem to be that the more time parents spend on educational activities at home and at school, the better the test scores of the students. This type of knowledge is "real world" oriented, and can be used immediately by administrators. Unfortunately, school administrators often feel overworked already, and are hesitant to do the kind of outreach and training which would be necessary to implement such a program.

Most Indian parents have only vague and limited contacts with the schools their children attend. School personnel report that they know few of the parents of the children they are teaching. There is a huge gap between the home and the schools; on the school side, the gap is filled with teachers, aides, students, and principals. On the home side, the gap is filled with parents, grandparents, tribal leaders, and community leaders. There is little contact between the people on each side of the gap. Schools often discourage contact between their personnel and Indian parents. Parents often are too intimidated to go to the school and ask for explanations of how things are for their children.

While there is a general gap between the homes and the schools in U. S. education, the situation of poor or no communication is rampant in Indian schools. There is often talk of "parent involvement," but little talk of "parent commitment." Parents often make statements such as "The school will take care of my children's education." In the minds of the

parents, they have a minimal role to play in their children's formal education. Both parents and school personnel need to have changed attitudes if parents are to team up with schools to produce highly-achieving Indian graduates in large numbers.

Many of the variables posited in Figure 1 can be manipulated by the school personnel to achieve better performance by Indian students. The next step should be to begin research on some of these variables, and to determine which ones could be addressed most readily to bring about improved outcomes for students. Only 30% of Indian students coming to Baccane College as freshmen in 1979 listed any career goal for themselves, for instance. Having a career goal at matriculation is one of the best predictors of whether students will graduate or not. Better career planning in the high schools is needed to prepare students to enter college. Tribal governments need to prioritize the fields of study needed for the economic and cultural survival of their citizens.

The personnel at Indian schools tend to be transient. While there is usually at each school a handful of teachers who are career-oriented, and who remain for long periods, there is a larger population which is in flux. One district with a student body which is 98% Navajo had annual turnover rates of 25%, 34%, and 23%, for the years 1985, 1986, and 1987 (Chavers, 1987a). As a general rule, one-fourth of the teacher population is lost each year, meaning that in a two-year period, half will be lost, and that in three years, three-quarters will be gone. This seems to be a high rate of transience of teachers, who seldom form strong social bonds in the communities in which they teach. One wonders what levels of commitment are reflected in these teacher corps.

BIA and contract schools are affected each year by the slowness of Congress in appropriating funds for their operation. Instead of having funds approved in advance ("forward funding"), the Congress for the past several years has not approved the annual budget for the BIA until as late as March or April of the school year. Such delay causes administrators to delay ordering needed textbooks, supplies, computers, and teaching aids, and to delay hiring personnel. In some cases, havoc is caused. Such anxiety contributes to high turnover rates, and causes the personnel who remain to operate in a stressful atmosphere in which they are uncertain if they are going to be paid on the next pay day.

Part of the reason for this situation is the push within the past several federal administrations to turn the responsibility for Indian education over to the states and their local public school districts. In 1938, half of Indian students were in public schools; today, fully 82% are in public schools, and only 12% are in BIA schools. Even though Indian education was promised to be provided in perpetuity by at least 119 of the 388 treaties with tribes (Chavers and Locke, 1984), the federal administration is continuing to abrogate the treaty obligations and force Indians into public schools.

Instability, transiency, isolation, lack of Indian control, and acceptance of the status quo are thus some of the outstanding characteristics of Indian schools. Tests are not seen by many students or their parents to be very important; they are mostly something to endure. Few Indian high school graduates are planning to enter college, and even fewer are planning to become engineers, economists, physicians, or astronauts. Tests thus do not carry a great deal of importance in

Indian Country. They are not viewed as opening doors to higher education or to high-achieving careers. They are something which holds students back, and "proves" that they are not worthy.

B. TEST USES AND FUNCTIONS

Native American Indians are exposed to a wide variety of tests during their lifetimes. Among them are:

1. Screening tests (Goodenough Draw-A-Man; school readiness);
2. Intelligence tests (WISC, PIAT, K-ABC, Stanford);
3. Placement/diagnostic tests (subject area tests, AFQT);
4. Achievement tests (CUES, WRAT, CAT, SAT, ITBS, CTBS);
5. Attitude tests (Coopersmith Inventory);
6. Language ability tests (Illinois, WROL, TSWE, CAS, IPT);
7. College entrance tests (SAT, ACT, GRE, MCAT, MAT, GMAT);
8. Reading tests (SDRT, DRP, Gates, SRA);
9. Professional licensing tests (bar exam, medical exam, trade entrance tests);
10. Personality tests (MMPI, Rorschach);
11. Competency tests (state-developed tests).

Not everyone is exposed to all types of tests, obviously. But testing is so pervasive that it is possible for a Native person to be tested with most of these types of tests during a lifetime.

Most tests, especially the pioneering ones in the early decades of this century, were specifically designed to be used with groups of people, and not with individuals. The growth of the science of test development and use has not progressed today to the point that any test can be used with a high degree of accuracy with any individual. Tests can and do measure a range of possible scores within which the "true" score for an individual probably lies. They give one indication among many other possible indicators of some element of an individual's behavior. They should

always be used with some other indicators, whether observations, teacher reports, counseling reports, or medical reports. Too much reliance may be placed in tests for use with Indian school students, because of the absence of other indicators, and because teachers often cannot understand or comprehend the culturally-different and linguistically-different Native student.

Tests developed and normed with majority populations have a built-in set of errors when used with Native American Indians. Among the ones which have been identified so far by researchers are low internal consistency on test factors when used with Native students, item bias, and different patterns among subtest factors for Natives than for other students (Dana; McShane). Despite these errors, tests as used by teachers, principals, and counselors are freely applied to the individual Indian student for diagnosis, screening, placement, and grouping. The result of this misuse is that too many Indian students are placed into remedial classes, classes for the learning disabled, and classes for the slow learner. Such misuse must cease.

Despite "orders" from the Congress to reform testing within the BIA schools, student assessment and testing is being done now the same way it was before the Congressional order. The order came in Public Law (P. L.) 95-561 in 1979. Dissatisfaction with the implementation of that law led Congress to re-inforce its provisions and re-state its intent in the latest Indian education act in 1988, P. L. 100-297, which states "In carrying out its Education mission, the Assistant Secretary for Indian Affairs, through the Director, shall establish and maintain a program of research and development to provide accurate and culturally specific

assessment instruments to measure student performance in cooperation with Tribes and Alaska Native entities." (The policies for P. L. 95-561 are listed under Holmgren and Locke in the bibliography).

There is very little available in testing materials to use with students in their Native languages and cultures. Most of the material which is available is criterion-referenced. We do not know of any Native-normed test of any kind. This is an area which is obviously rich in development possibilities.

C. THE RESULTS OF TESTING

The effects of testing on Indians have contributed to this population being on the bottom rung of the ladder for most social and educational indicators. Half of Indian students drop out of high school before graduation. Unemployment and underemployment on Indian reservations is rampant. Few Indians are in the status of journeyman in the various trades, or in training to enter the top status of journeyman. High school graduates in Indian Country typically score four to six grades below the national norms as seniors on the CTBS, Stanford, and comparable tests.

Testing is sometimes the problem, as when items are biased, or the factors are computed incorrectly, or test scores are interpreted incorrectly. Testing itself may only cause 5% or 15% of the actual variance in test scores for Natives. There are other real factors causing high dropout rates, unemployment, and lack of training. Among them are discrimination, isolation in rural areas, cultural bias, the low expectations of teachers and counselors, lack of opportunity, lack of funds, geographic mobility of Indian families, economic underdevelopment, lack of control and power, and a host of other factors. To the extent that testing itself is a problem, it is relevant for discussion here. We want to make it clear, however, that testing is only one factor associated with a national tragedy in Indian education.

Testing, to some extent, reveals real-world problems and conditions. The gap of four years between national norms and Indian high school seniors, for instance, does reflect a lack of mastery of knowledge by many Indian students. To the extent that standardized tests measure the degree to which Indian students can understand and cope with mainstream America,

then such testing will give an approximate measure of this aspect of educational performance, if all other factors are constant.

1. Testing in BIA Schools

Until just recently, there was no systematic testing of students in BIA schools. Reflecting a policy decision made in 1985, all BIA operated and contract schools are now directed to administer a standardized, nationally-normed test to their students each year. These tests were given throughout the BIA system in 1985-86 and in 1986-87 for the first time. Each BIA-funded school is directed to administer either the CAT or the CTBS once a year. Both tests are owned by McGraw-Hill.

In the Spring of 1988 the Bureau widely disseminated the 1985-86 test results to the national media. These test results showed very low percentile rankings for Indian students compared to public schools in the U. S. The BIA neglected to mention in its press release that the BIA test results included the scores of 6,205 special education students, including those Indian children who are severely and profoundly retarded, the mentally retarded, and those having special and specific learning disabilities. Public schools exclude special education students in reporting students' test scores. Thus, while the BIA students score low, the only scores which have been reported for these schools nationally are hopelessly comingled with special education students' scores so that scores for regular students cannot be determined. The BIA simultaneously released a "Final Review Draft Report on BIA Education" which included the distorted test data. (BIA, 1988a)

Whether the Report and the data on test scores were intended by the administration to discredit BIA schools further, and hasten their end a

little quicker, the effect was the same. The release, done without any prior consultation with tribes, caused a furor in Indian Country. The Standing Rock Sioux Tribe, for instance, protested vociferously through a resolution (Standing Rock, 1988b) and a critique (Standing Rock, 1988a) which stated that the Council was "appalled that the Report has been so irresponsibly distributed all over the United States ... ". The resolution called for dissemination of the report to cease. Other tribes reacted in a similar manner.

Because some 15.5% of the students in BIA schools, or 6,205 of them, are "handicapped," the inclusion of their test scores in the comparative scoring causes the tables of percentile rankings to be useless. Tribes and educators are calling for more accurate test procedures, leading to more valid results comparable to national norms, in the future.

2. Testing in High School

Testing is used for placement, for diagnosis, for intelligence testing, for college entrance, and for achievement testing in high schools in which Indians are enrolled. Less frequently, testing is done for language assessment, for reading assessment, for screening, and for attitude testing. These test results are subject to misinterpretation; in some 75 schools in which the first author has worked as a consultant in the past seven years, none had a psychometrist on staff. The only exceptions were a few schools in which a counselor filled in as a psychometrist. Most of these schools had Indian enrollment percentages of 65% to 98%.

Several facts stand out in regard to testing of Native students in high school:

- o Indian high school seniors test four to six years below the

national norms as seniors (Figures 2 and 3).

- o About 50% of Indian high school students leave school before they are graduated. The range is from about 25% at the low end to as high as 65% at the upper end (Chavers, 1988a). Hard data on the dropout rate are scarce. Those which are available tend to be episodic or nonrecurring. Districts often report a one-year rate, usually about 10% to 15%, which seems on its face to be valid. When projected over four years, however, these data are actual rates of 40% to 60%.
- o Indian high school students are reading well below the national norms (Figure 4). They are reading at or close to the national norms in elementary school (Figure 2), but vegetate in the middle school/junior high school years. These students often test in the ninth grade at the same level they tested three years earlier, in the sixth grade. Something mysterious is happening with these young teens. No one seems to understand it, or know what it is, or know what to do about it (Chavers, 1976).
- o High school students taking the state-mandated competency tests are failing them at about twice the rate of their non-Indian peers. About 40% of Indians fail, and about 20% of non-Indians fail. Students failing to read at the ninth grade level in Arizona shortly will not be allowed to enter the military, to enter college, or to graduate from high school. They will be awarded certificates of attendance if they stay through the twelfth grade, instead of diplomas, according to the current plan from the State Legislature. Thus performance on a test

as a senior in high school will have a profound effect on the lives of thousands of Indians in Arizona.

Indian students who are graduated from high school and who do not attend college typically have unemployment rates of 60% to 80% for a few years. When they are in their mid-twenties, the unemployment rate drops to about 30%. By the time they are 40 years old, only 15% of them are not working. Thus an Indian high school student has an 85% chance of having a steady job 22 years after graduation. We can only speculate at this time about the effects of testing on these students. It may be, however, that having scored four or eight grade levels below the norms leads a number of them to give up, and not try to find employment. They probably have a poor concept of their own abilities in a preponderance of cases. The relationship of testing to employment after high school needs to be researched as a high priority.

3. Testing and Employment

Several facts stand out in regard to testing and employment patterns of Indian adults. Among them are:

- o Unemployment on Indian reservations is 49% (BIA, 1989b). It has been within two percentage points of this level since the first data on it were reported in 1981 (BIA, 1981). The range is from a low of 15% with a few tribes to as high as 90% with several tribes. Most tribes have rates in the middle range, from 35% to 65%. Anywhere else in the nation these levels would be considered an outrage. On Indian reservations, data collectors do not even want to collect the information.

- o Unemployment for urban Indian young people (under 22) is as high as 80% (Chavers, 1976c). Typically, urban Indian populations range from a low of 50% unemployment to a high of 80%, with about 60% being the mode.
- o Unemployment overall for urban adult Indians is about 20% to 30%, or about half what it is for reservation Indians.
- o Unemployment for Indian adult males over 40 years old drops to about 15%, or just three times the national average. The message for Indian youth seems to be to wait until they are thirty to forty years old, and they might have a chance to have a job. But there is a long wait. Many people's youths are being wasted.
- o Family income levels for Indians in the 1980 Census were about \$11,000, or half the level for the nation as a whole, which was \$21,000.
- o About 93% of Indian college students qualify for need-based financial aid programs (BIA, 1973). This means they have low incomes.
- o About 70% of Indian families live below the official U. S. poverty level.
- o Indians who are employed in the cities are working mostly at entry level jobs (Albuquerque). There are few in the management, skilled, or professional ranks in government employment or in private industry employment.
- o There are only a handful of journeyman Indians in the electrical, carpentry, plumbing, masonry, pipefitting, painting, and other trades. In many unions, there are no Indians. The one

exception is high steel in New York City, where several dozen Mohawks are employed.

- o There are few Indians in middle management in U. S. industry, and a miniscule number in upper management.

There are few data available on this topic. Tsang reports that the passing rate for the California licensing examination for nurses was 84.4% for whites, and only 53.6% for Native Americans. The City of Albuquerque reports that only 2.2% of the work force of 5,500 city employees is Native American, and that only 39 of the 159 total are in professional, management, and skilled positions (Albuquerque). Only one of the 159 is an official or manager. Indians make up 3.4% of the Albuquerque SMSA population. There are only eight skilled craftsmen out of the 159, and only nine technicians. There are 20 office/clerical workers, 31 service workers, 36 firemen and policemen, and 12 paraprofessionals.

Testing is used by government and private industry in numerous situations. We can only speculate now, based on what we know about testing in school for Natives (Dana; McShane) and what we know about Asians in the employment marketplace (Tsang), that Indians do less well on verbal, mathematical, and English language tests than do others. We can also speculate that there is a mismatch between the expectations of employers and personnel officers and the expectations of Natives applying for jobs.

We can also assume that, while Indians do not understand the expectations of employers very well, employers do not understand the expectations of Indians very well. The employers have all the power, and can continue to ignore the cultural differences, or to minimize or disparage them. But employers can also try to learn about people with different

cultures, try to understand them, and reach out to them to include them in the labor force. They must comply with Equal Employment Opportunity laws, and, where applicable, Indian preference statutes.

4. College Entrance and Attendance

The 1960's saw the start of a period of growth in the number of Indians in college in the U. S. This growth continued and increased its rate of expansion through the 1970's and into the 1980's (Figure 6). The growth has reversed itself in the middle of the 1980's, however; there has been a drop of 5,000 total Indian students in the past few years. The peak years of the late 1970's saw the total reach almost 45,000. The total this year is about 38,000.

(NCES/HEGIS data on Indians are about 100% inflated, and should be used with caution. The data are generated from student census cards each fall. The choice of ethnic group is left to the student and taken at face value. Self-identification is known to over-report Indians by a considerable amount (Astin)).

About 93% of these students have to rely on financial aid from the federal government to be able to attend college (BIA, 1973). Many of them are older students, with populations having average ages of 28 to 32 being fairly common (AIHEC; NASF). About two-thirds of them are in public two-year junior and community colleges (Olivas). Only three out of ten have thought about their career choices enough to have decided upon a career before they enter college (Chavers, 1979). To reach parity with the rest of the nation, there would have to be about 110,000 Indian students in college this year, instead of the current total of 38,000.

The following facts stand out in relation to college training for Indian people:

- o Indians enter college at a lower rate than the rest of the population--about 25% of Indian high school graduates, compared to about 40% of other high school graduates.
- o The dropout rate for Indians in college is about 63%, somewhat higher than the rate for the nation as a whole, which is 46% (MacNamara).
- o Some 60% of Indians who graduate from college have degrees in the field of education, compared to 13-15% for the nation as a whole (Greenbaum; GAO, 1977).
- o Probably under 30,000 Indians have college degrees, or about two percent (2%) of the total Indian population. About 21% of Anglos in the U. S. have college degrees.
- o There are about 400 to 600 Indians with doctorate degrees, not including medicine. (Chavers, 1980). This number has probably doubled in the past ten years; ten years ago, there were 200.
- o Pre-college test scores for Indians are lower than the norms for other students. The 1988 composite mean for the ACT for Indians was 14.9 (national norm about 18.6), and for the SAT scores for Indians averaged 393 on the SATV and 435 on the SATM. The quartile equivalent of the ACT score is about the twenty-third percentile; in other words, the average Indian score was 23% of the way from the bottom, and not 50% of the way.
- o Indian students who graduate from college tend to take six

years to complete a degree, not four (GAO, 1977). They earn about ten credit hours per semester instead of the norm of 15, and they earn grades which average 2.1 out of 4.0, below the norm of 2.7 out of 4.0 (GAO, 1977).

- o There are drops at every step in the educational pipeline, as shown in Figure 7 from Astin. The drops for Indians are more than the drops for other ethnic groups at every level.
- o There are fairly large gaps between the actual numbers of Indians in the professions and the numbers which would be required for parity. It does not appear that Indians have "caught up" with the rest of the population in any professional field. (Figure 8)
- o In the professions, Indians are concentrated at the bottom. In the education profession, shown in Figure 5, there is one state level superintendent (in Alaska), and a few Indian school district superintendents. There are a few Indians in principalships, but the school district with the largest number of Indian students, and 27 schools, has no Indians in a principalship. In most professions, Indians are just starting to be eligible to move into management, policy making, and decision making positions.
- o Indian college students concentrate on education and the helping professions, and shy away from math and science. Only some three to five percent (3-5%) of Indian students major in math and science (Chavers, 1979).

D. FACTORS RELATED TO TESTING OUTCOMES

As an initial proposition, let us posit the following factors as being related to test outcomes. Some of them may be causal in nature, while others may simply co-exist with test results. That is, both the test results and a co-existing factor may be caused by a third factor.

The important factors we think are:

- o Reading ability;
- o Native language usage and levels;
- o Time on task;
- o Motivation of students;
- o Socio-economic status (SES);
- o Environmental factors;
- o The test syndrome;
- o Native culture;
- o Acculturation;
- o Late maturation;
- o Race relations.

The rest of this section will be a preliminary discussion of these factors. A major research effort is needed to (1) determine predictors of test outcomes for Native American Indians, (2) determine the extent and type of test bias which exists, and (3) develop norms appropriate to Native populations. There may be a need to develop new tests.

Reading ability is the key to many other academic skills. The bulk of Indian students--about two-thirds of high school students--are reading below grade level by two or more Grade Equivalents (GE) (Figure 4). One major way to improve Indian education outcomes is to concentrate heavily

on reading in the schools. The relationship of reading to other outcomes needs to be researched.

Native language and its ability to affect educational outcomes is not very well understood. Two decades ago, the BIA decided to engage in a crash course in bilingual education in Alaska. Then, a few years ago, the BIA basically terminated education services to Alaskan natives. The results from the Alaska experiment were mixed, but some results showed that students who started in their Native languages in school, and then made a transition into English after three years, did significantly better than those immersed in English from the first grade. Language "interference" is probably a factor in many areas of Indian Country.

Time on task may be as important as reading ability. Indian students are not motivated to complete homework now. They are not made to study enough, either by parents or teachers. Parents often do not know what the schools expect. The teachers do not assign homework every day because they don't think the students will complete it. Indian students probably spend about 75% as much time as other students do. Increasing time on task would have immediate increases in results. A major problem for Indian educators, the majority of whom are paraprofessionals, is how to get the schools to increase time on task. Teachers now are much too paternalistic toward, and apologetic about, their Indian students.

Motivation of students is somehow not assigned to anyone in the systems. Teachers do not undertake to motivate students, because they often have low expectations of them and their future. Counselors mainly handle scheduling, and have not nearly enough time to counsel each student individually. Parents want the best for their children, but do not define

this except in a general way. Tribal education departments are nearly non-existent; the 25 out of 300 tribes which have them find that they have little control over the education processes directly, but handle scholarships, operate special programs, and such. Thus Indian students are not highly motivated. Their career goals are not very clear. Motivation is related to time on task. Students are not highly challenged; they have little challenge to which to rise. They would rise to a challenge if it were presented to them.

Socioeconomic status is clearly related to educational outcomes. The facts are damning. With most Indian families living below the poverty level, with half of Indian adults unemployed, and with low levels of education of parents, SES apparently will keep Indian students performing below par forever if some intervention is not made. Poor students score much lower on tests than do rich students, on the average. Middle class Indian students now do about as well as their SES Anglo peers on tests. It is the huge poverty class in Indian Country which has the lowest test scores.

Environmental factors include such things as how much time students spend on studying at home, whether they have a designated place and time to study, whether their studying is monitored by a parent or adult, how much time they have to spend on chores at home, whether they get tutoring or not, and such devastating things as overcrowding, alcohol abuse, substance abuse, child abuse, and child neglect. There is a general feeling in Indian schools that the homes of students may not provide an optimum environment for study. This area needs to be defined, studied, and ameliorated.

The test syndrome is alleged to affect many Indian students. They are said to be afraid of tests, not to understand how to take tests, to misunderstand instructions given for test taking, and so on. There may not be anything written on this possible factor; but it may be important.

Native culture has been found by Tsang to be related to success in getting and keeping jobs for Asians. We suspect the same thing is true for Native Americans. The Native person from one culture does not understand the communication style, the expectations, and the feelings of the employer from another culture. The Native student does not understand the cultural context of in-school tests. Culture has profound effects on test outcome results, because it means that people from two different cultures expect different things from life, from each other, from work, from school, and from the world in general. "Cultural bias" in testing has been much talked about for twenty years or more, but little has been done in the researching of its effects. It may be that no research on the effects of culture on testing for Natives has been done; the latest annotated bibliography of doctoral dissertations (Davids) reports that none of the 22 dissertations relating to culture also combined testing with the topic.

Acculturation has been found by several researchers to be related to testing outcomes. In general, the more "acculturated" or Anglo-like the student, the higher the test results. This finding is one of the most powerful arguments that cultural bias exists in tests. It also seems to say that to be successful in U. S. society, it is necessary for the Native student to turn his back on family, community, home, and hearth. This is a cruel choice, and one that many Indians will not make.

Late maturation may be a factor which has policy implications. The

average age of Indian college students is much higher than the average age for all students (AIHEC; NASF) Do these students have better test scores than younger students? Does maturation/career choice have an effect on Indian students? This needs to be researched, since most college planning is done with high school seniors and juniors. But in Indian Country, a large number of college students are returning adults. Some alternative means of college planning may need to be developed.

Race relations is a fact of life for Indians. Indian educators assume that race relations has an indirect effect on test scores. Overt discrimination is a fact of life in Indian Country. Indian students learn early that there are certain places they cannot go, certain things they cannot do, certain things to which they cannot aspire. The good jobs are always held by non-Indians. Indians have the low-paying, low-status jobs, which do not require degrees or even diplomas. These facts place an upper limit on the thinking of students. Living with such an upper limit in one's mind probably affects students' motivation in some very real ways. Students give up before they even try, because they assume they are only going to have the low-paying jobs no matter how hard they try. This upper limit affects motivation, time on task, career planning, and parents' support of their children's education.

E. CONCLUSIONS AND RECOMMENDATIONS

Many aspects of testing for Native American Indians are not understood well by researchers and users of tests. This lack of knowledge and understanding has some relationship to the outcomes of testing, which are mostly bleak. A data base and a knowledge base both need to be built in the coming years, with the idea that improvements will occur for Native populations.

The research should start with the identification of the major factors which are related to the test scores of students in school. If these factors are better understood, school personnel will have a grasp of determinants to use to improve instruction, improve support services, motivate students, and gain greater parental commitment to high quality education.

A data base on outcomes needs to be developed on a national level, to be brought to the attention of policy makers in government, in the schools, and in the professions. The policy makers need to be made aware of the deplorable situation of Native people in schools, in jobs, and in training. The problems are almost intractable, and must be addressed immediately and over long periods of time to make an appreciable difference.

The effects of test bias, and of cultural bias, need to be studied further, and the biased items need to be modified or eliminated.

The ways in which tests used with Natives have different factors which emerge upon factor analysis has policy implications and it has future test development implications. The ways in which factors for Natives are different from factors for other populations have implications

for uncovering different predictor patterns for this population compared to the populations on which the tests were normed. All major tests should be studied systematically to determine if different factors emerge when used with Native populations.

There are few if any Native people employed by test developers and administrators. There is a need to bring more Native professionals into the testing field. There is a need to have more Natives on test development committees and boards, also.

In some cases, there should be Native norms established for tests. Where there is a large enough population using a test, this is possible.

The fact of cultural differences means that there are two sides to each communication situation, each contact across cultures. Teachers, counselors, principals, employers, and others who come into contact with Natives need to have a basic understanding of Native culture and expectations. Despite the ethnic studies movement of the 1960's, the level of understanding of the culturally different among the majority population is very low. Research on the effects of monoculturalism on the majority population is also needed.

There is apparently little which has been done to determine the reliability and validity of tests for Native populations. Some longitudinal studies need to be done to determine which factors are reliable and valid for Natives, and which predictors hold up over time.

Test results need to be analyzed to determine problem areas for the schools. Too often, test scores are reported back to the schools by the test processor, and filed in a vault, with no further analysis made or disseminated on them. Tests should be used as problem-identifiers within

schools to the extent that such tests are valid. Too often, the schools have no one on staff with the necessary expertise to do this work. Gaps in the curriculum, and weak areas in the curriculum, should and could be determined using feedback from test analysis. It is probably not the case that all items are missed equally by the students in a school. Some items are probably missed more frequently than others. Such direct feedback could give valuable information to teachers, curriculum planners, and school administrators.

The effects of test outcomes need to be researched. While this report outlines some of the outcomes, some of them are inadequately documented or researched. Critically important is the dropout rate from high school and college of Native students. According to one researcher, there has only been one national study of retention among Native college students (Tierney). Factors related to these outcomes need to be researched.

The immediate effects of testing in the schools need to be determined. We suspect that far too many Native students are placed into special education, learning disabled, and remedial classes. The effects of a lack of English fluency are sometimes confused with the effects of learning impairments. Research on differentiating the differences between the two phenomena must be accomplished. Students whose only "sin" is not knowing English well are having stigmas placed on them for life.

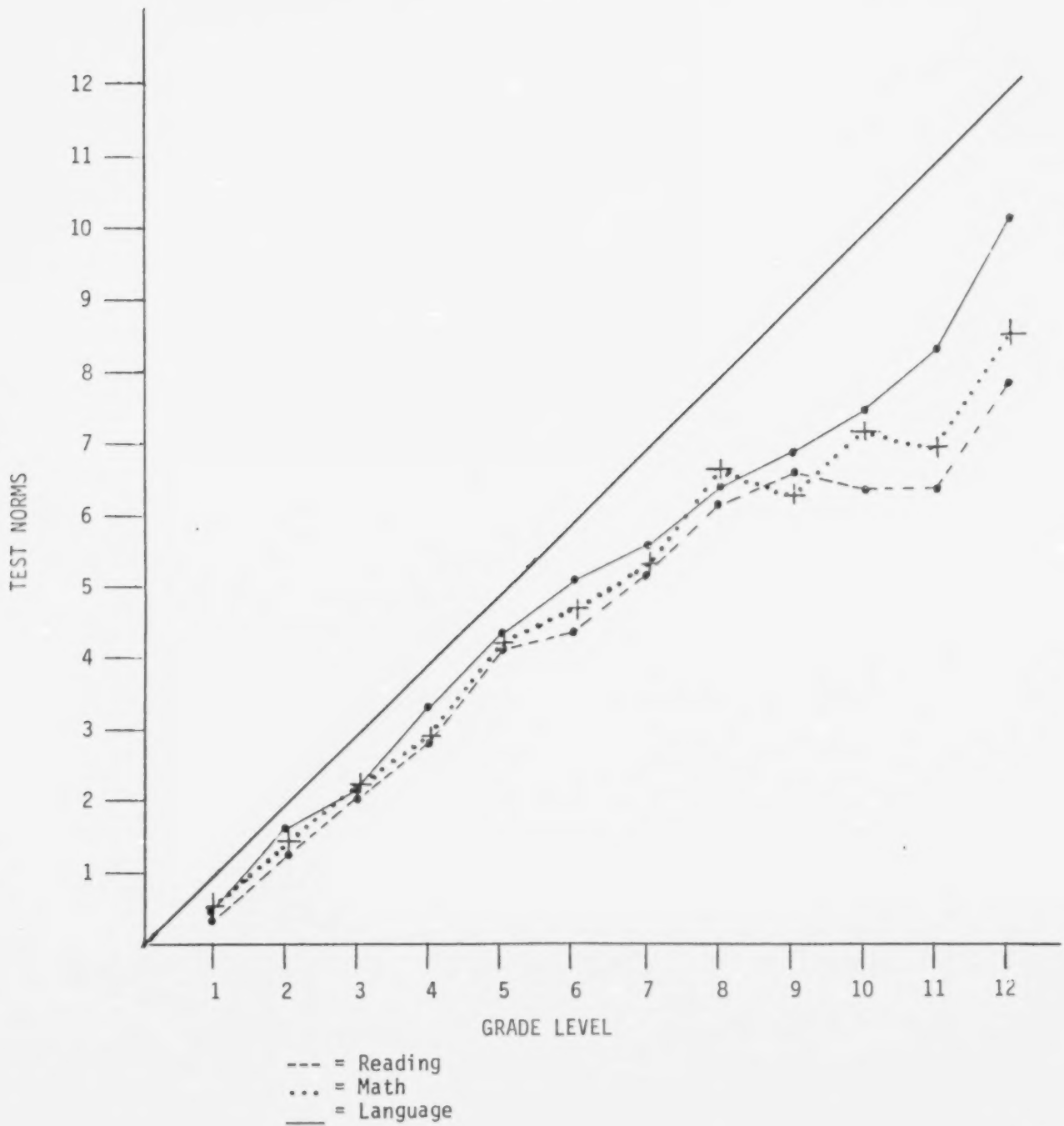
The degree to which there is a fit between the curricula of the Indian schools and the nationally-normed standardized tests needs to be determined. In one study of four BIA boarding schools, the highest math offering, at only one of the four schools, was first year algebra (Chavers, 1976). None of the four had advanced algebra, trigonometry,

geometry, or calculus in the curriculum. These students cannot possibly score as well on the SATM as students who were exposed to these subjects in school.

Test owners and developers need to come up with better ways of determining the ethnicity of test takers. The first results of the release of racial and ethnic data from The College Board showed the parents of test takers who reported they were Indians (c. 1983) to have family incomes of about \$22,000. The 1980 Census had reported income levels for Indian families of about \$12,000. Further inspection of the data showed that the majority of the test takers who claimed to be Indian were in the Bread Basket states and New England, while most Indians identified by the Census are found west of the Mississippi River. It has become increasingly popular to claim Indian heritage in the past few decades. The results, however, blur the aggregate data for Natives greatly, and is a problem for all tests and surveys which collect ethnic data.

Finally, the BIA must comply with the most recent law from Congress which addresses testing. Section 1123 of P. L. 100-297 mandates the establishment and maintenance of a program of research and development to provide accurate and culturally-specific assessment instruments. The BIA did not request funds for this purpose in its FY 90 budget request; this lack of compliance must be reversed.

GANADO UNIFIED SCHOOL DISTRICT
ITBS AND STANFORD TEST RESULTS
1986



COMPARATIVE TEST RESULTS
Indian Districts in Arizona

The following information is a summary of state-mandated achievement test data collected over the past five years. School year 1984-85 is omitted because a different test was administered that school year, and no satisfactory conversion tables exist.

READING--1983, CAT Test

<u>School District</u>	<u>Ninth</u>	<u>Twelfth</u>	<u>Growth</u>
NATIONAL AVERAGE	9.7	12.6	2.9
Chinle	7.2	8.6	1.4
Red Mesa	6.1	8.7	2.6
Ganado	7.7	9.0	1.3
Page	10.0	11.3	1.3
Tuba City	7.5	9.0	1.5
Window Rock	8.0	9.7	1.7
Kayenta	6.8	8.8	2.0

LANGUAGE--1983, CAT Test

NATIONAL AVERAGE	9.7	12.7	3.0
Chinle	7.8	8.7	.9
Red Mesa	5.6	8.1	2.5
Ganado	8.5	9.4	.9
Page	10.8	12.8	2.0
Tuba City	7.8	9.1	1.3
Window Rock	8.6	10.8	2.2
Kayenta	7.1	8.7	1.6

READING--1984, CAT Test

NATIONAL AVERAGE	9.7	12.6	2.9
Chinle	7.2	8.3	1.1
Ganado	7.4	9.0	1.6
Red Mesa	6.1	8.0	1.9
Window Rock	8.0	9.5	1.5
Page	10.0	11.9	1.9
Tuba City	8.0	9.3	1.3
Kayenta	7.3	9.1	1.8

LANGUAGE--1984, CAT Test

NATIONAL AVERAGE	9.7	12.7	3.0
Chinle	8.0	9.4	1.4
Ganado	8.0	10.0	2.0
Red Mesa	5.6	7.9	2.3
Window Rock	9.2	10.5	1.3
Page	10.9	12.9	2.0
Tuba City	8.3	9.5	1.2
Kayenta	8.1	10.1	2.0

DISTRIBUTION OF TEST RESULTS
Reading, Ninth Grade
Kayenta Unified School District
Fall, 1987

Mean = 6.7

Median = 6.3

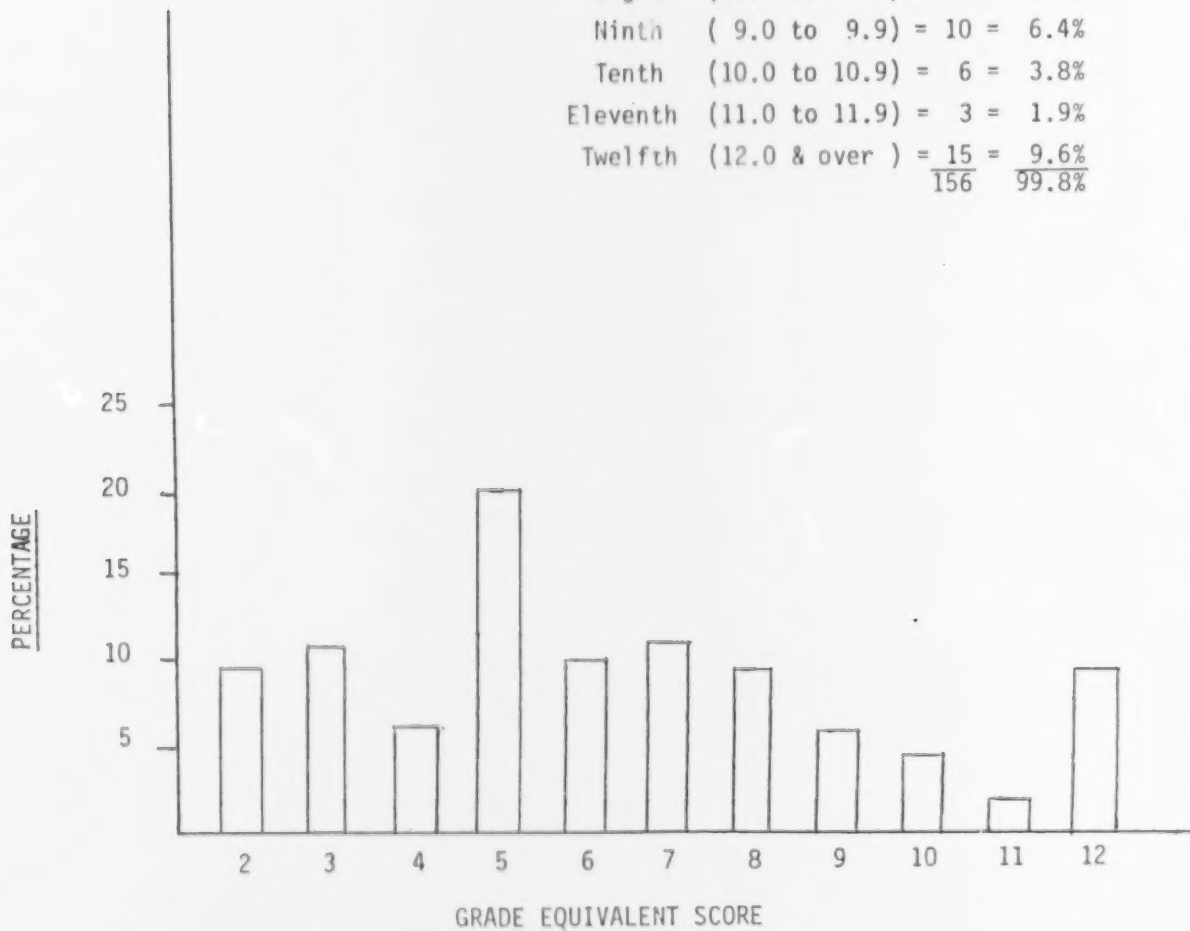
National norm = 9.1

Below norm = 122 (78.2%)

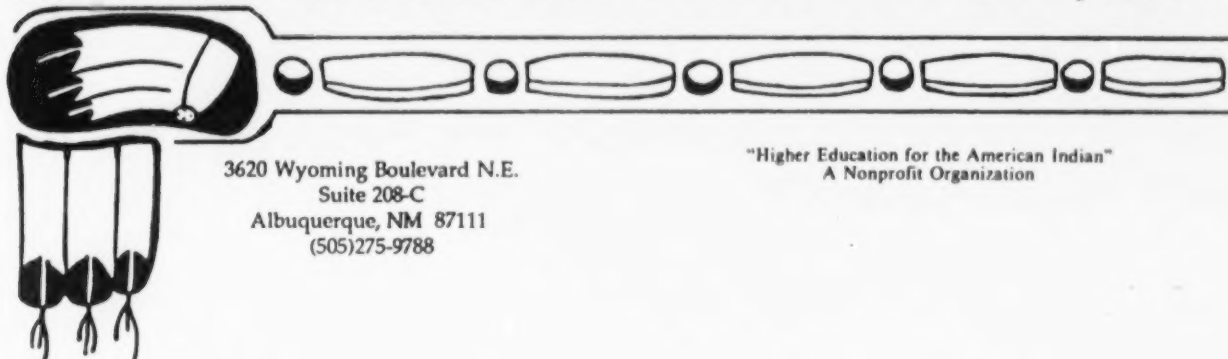
Above norm = 34 (21.8%)

RESULTS/RANGES

Second	(1.8 to 2.9)	= 14	= 8.9%
Third	(3.0 to 3.9)	= 17	= 10.9%
Fourth	(4.0 to 4.9)	= 11	= 7.0%
Fifth	(5.0 to 5.9)	= 31	= 19.9%
Sixth	(6.0 to 6.9)	= 16	= 10.3%
Seventh	(7.0 to 7.9)	= 19	= 12.2%
Eighth	(8.0 to 8.9)	= 14	= 8.9%
Ninth	(9.0 to 9.9)	= 10	= 6.4%
Tenth	(10.0 to 10.9)	= 6	= 3.8%
Eleventh	(11.0 to 11.9)	= 3	= 1.9%
Twelfth	(12.0 & over)	= 15	= 9.6%
		<u>156</u>	<u>99.8%</u>



NATIVE AMERICAN SCHOLARSHIP FUND, INC.



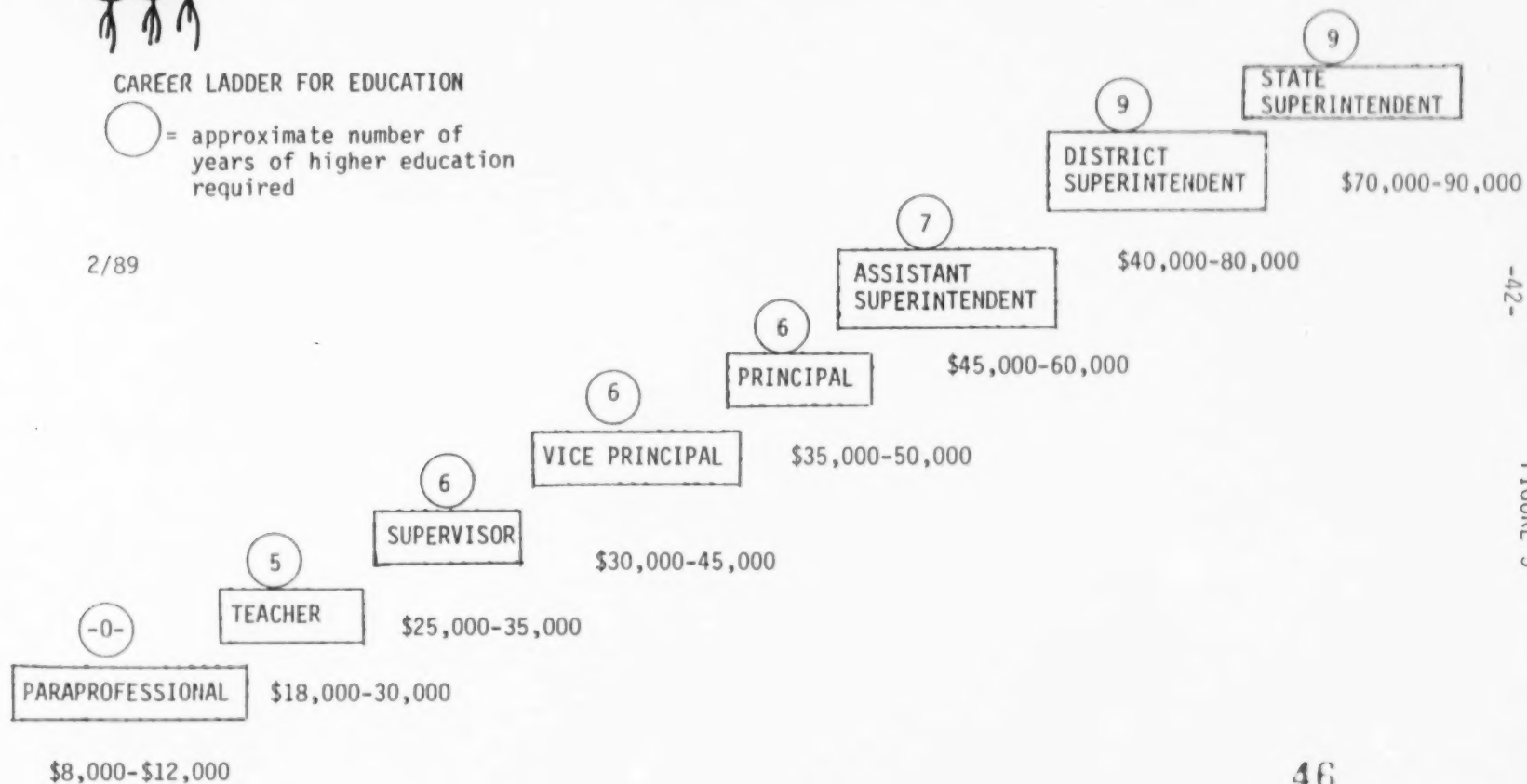
3620 Wyoming Boulevard N.E.
Suite 208-C
Albuquerque, NM 87111
(505)275-9788

"Higher Education for the American Indian"
A Nonprofit Organization

CAREER LADDER FOR EDUCATION

○ = approximate number of
years of higher education
required

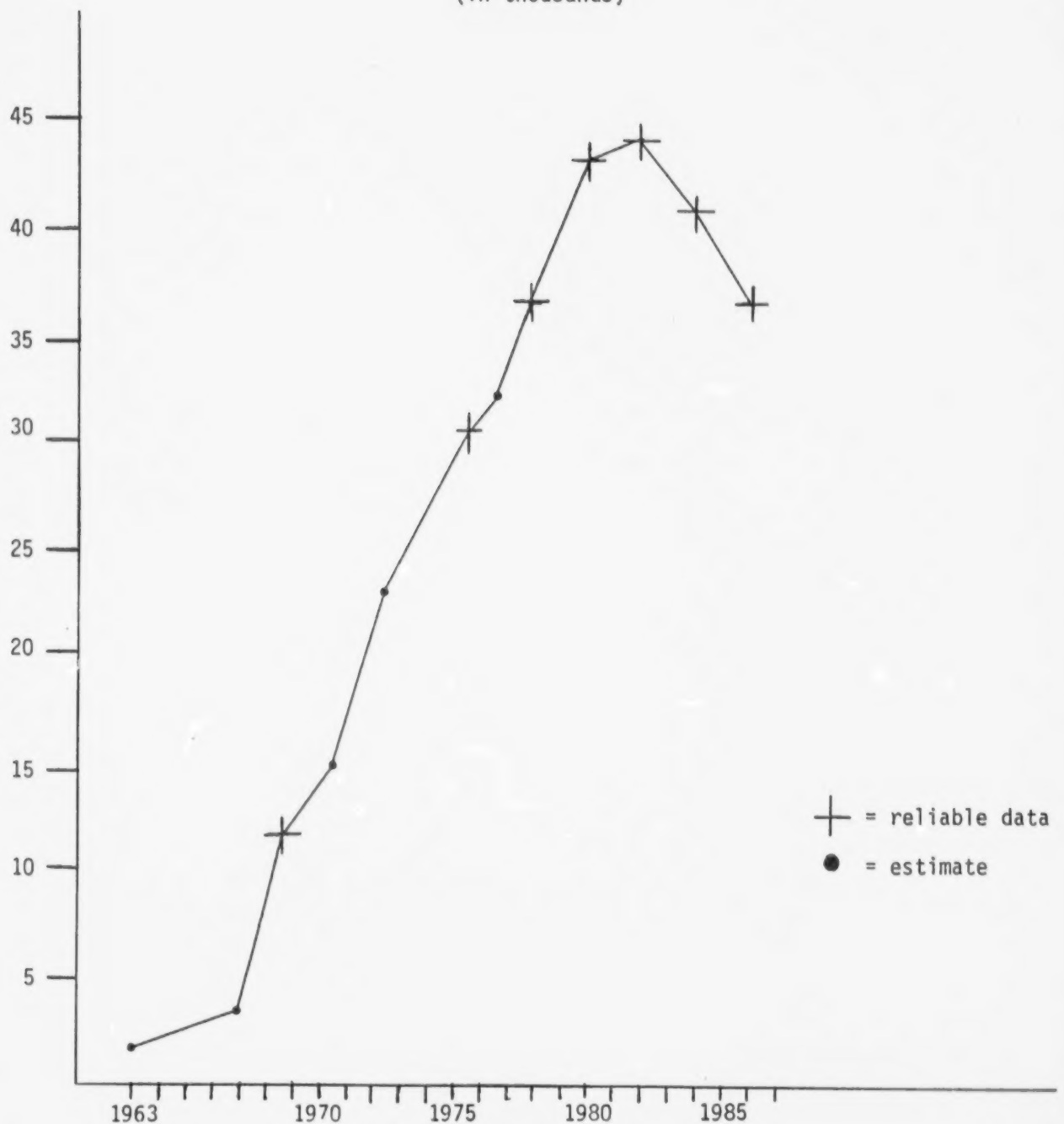
2/89



-42-

FIGURE 5

COLLEGE ENROLLMENT
OF NATIVE AMERICANS, 1963-1986
United States
(in thousands)



SOURCES: Judith E. Fries, "The American Indian in Higher Education, 1975-76 to 1984-85." Washington, DC: Center for Education Statistics, 1987. Bureau of Indian Affairs, "Statistics Concerning Indian Education," annual.

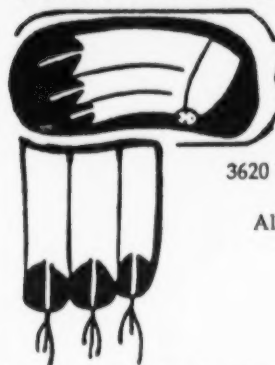
Astin

Figure 1. The Educational Pipeline for minorities.



NATIVE AMERICAN SCHOLARSHIP FUND, INC.

FIGURE 8



3620 Wyoming Boulevard N.E.
Suite 208-C
Albuquerque, NM 87111
(505)275-9788

"Higher Education for the American Indian"
A Nonprofit Organization

AMERICAN INDIANS IN THE PROFESSIONS*

Field of Specialization	U.S. Total	Total Indians	Total Needed For Parity	Percent Of Parity
MEDICINE				
Medical Doctor (MD)	340,000	115	1,560	07
Dentist (DDS)	120,000	6	552	01
Nurse (RN)	835,797	755	3,846	20
Veterinarian (DVM)	30,000	20	140	14
Podiatrist (DPM)	7,120	2	33	06
Pharmacist	125,000	30	573	05
Speech Pathologist	16,000	10	73	14
Optometrist (DO)	19,265	12	88	14
Psychiatrist	25,000	42	115	36
Social Worker	440,000	250	2,018	12
MA in Social Work	?	25	?	?
BUSINESS				
Accountant	868,000	300 (est.)	3,982	08
Computer Specialist	371,000	100 (est.)	1,702	06
1978 MA graduates	30,148	25	138	18
1978 Doctoral graduates	834	0	3	00
SCIENTISTS & ENGINEERS	2,705,800	2,600	13,653	19
ENGINEERS (All fields)				
Bachelor's degree	1,267,000	140	5,814	02
MA and Ph. D.	19,165	14	52	27
Architects 56,284	56,284	22	257	09
Geologists	20,515	0	94	00
DOCTORATE DEGREE HOLDERS				
(All Fields)	600,000	200 (est.)	2,652	08
Psychology (MA & Ph. D.)	50,000	50	229	21
Sociology	?	28	?	?
ATTORNEYS	462,000	250 (est.)	2,019	09
TEACHERS				
Public School	3,042,000	3,534	13,954	25
College Faculty	583,216	417	2,675	16
Medical School Faculty	39,330	14	181	08
Dental School Faculty	11,467	3	52	06
LIBRARIANS	208,000	61	954	06

*Statistics from the American Assembly of Collegiate Schools of Business, the American Association for the Advancement of Science, the American Association of Colleges of Podiatric Medicine, the American Dental Association, the American Indian Lawyer Training Program, the American Indian Library Association, the American Library Association, the American Indian/Alaskan Native Nurses Association, the American Medical Association, the American Psychiatric Association, the American Psychological Association, the American Sociological Association, the American Speech and Hearing Association, the

Association of American Indian Physicians, the Association of American Indian Social Workers, the Ford Foundation, the National Consortium for Graduate Degrees for Minorities in Engineering, the National Education Association, the National Fund for Minority Engineering Students, the National Society of American Indian Engineers, the U.S. Census of 1970, U.S. Population Survey of 1976, the U.S. Public Health Service, the U.S. National Center for Education Statistics, the Scientific Manpower Commission, and the Western Interstate Commission for Higher Education.

TYPE OF SCHOOL	TYPE OF CONTROL	NUMBER OF SCHOOLS	PERCENTAGE OF TOTAL ATTENDANCE	TOTAL NUMBER OF INDIAN STUDENTS
Public Schools	Public School Boards	3,500+	84%	300,000
Bureau of Indian Affairs Schools	Bureau of Indian Affairs officials	170	12%	42,000
Contract Schools	Local School Boards, Indian controlled	65	2.5%	9,000
Mission Schools	Churches	65	1.5%	6,000

TYPES OF SCHOOLS FOR INDIANS

-46-

CHART 9

BIBLIOGRAPHY

- Albuquerque, City of, "Personnel Report. Native Americans." 3/16/89
- American Indian Higher Education Consortium (AIHEC), "Annual Report, 1978." Denver: the Consortium.
- Antell, Lee, "Indian Education. Problems in Need of Resolution." Denver: Commission Report No. 136, 1980, Education Commission of the States.
- Astin, Alexander, "Minorities in American Higher Education." San Francisco: Jossey-Bass, 1982.
- Black, John, "Native Americans at Stanford." Office of Institutional Research, Stanford University, 1976. Mimeographed report.
- Bond, Lloyd, "Understanding the Black/White Student Gap on Measures of Quantitative Reasoning." Paper presented at symposium on Testing and the Allocation of Opportunities in Education and Employment to Black Americans, Howard University, 1988, National Commission on Testing and Public Policy.
- Brescia, William, and Jim C. Fortune, "Standardized Testing of American Indian Students." ERIC Document EDO-RC-88-15.
- Chafe, Wallace, "Estimates Regarding the Present Speakers of North American Indian Languages." International Journal of American Linguistics, 28:162-171, 1962.
- Chavers, Dean, "Needs Assessment in Bilingual Programs: Analyzing Relevant Factors in Native American Communities." Paper presented to the Bay Area Bilingual Education League (BABEL) Conference on Native American Bilingual Programs, 1976a.
- Chavers, Dean, "Social Structure and the Diffusion of Innovations: A Network Analysis." Doctoral dissertation, Ph. D., Stanford University, 1976b.
- Chavers, Dean, "A Model Education Program." Indian Center of San Jose, Inc., proposal for funding from the Indian Education Program, Office of Education, 1976c.
- Chavers, Dean, "The Feasibility of an Indian University at Bacone College." Muskogee, OK: the College, 1979.
- Chavers, Dean, "Isolation and Drainoff: The Case of the American Indian Educational Researcher." Educational Researcher, AERA, 9:9, 1980.
- Chavers, Dean, and Patricia Locke, "The Status of Indian Education." Journal of Thought, 31-47, 1984.

Chavers, Dean, "A Comprehensive Needs Assessment Report." Ganado, Arizona, Unified School District, 1987a.

Chavers, Dean, "A Supplemental Needs Assessment Report." Ganado, Arizona Unified School District, 1987b.

Chavers, Dean, "Final Evaluation Report." Gallup-McKinley County Schools, New Mexico, Title IV, Part A, Indian Education Program, 1988a.

Chavers, Dean, "Final Report." Kayenta Unified School District, Arizona, Title IV, Part A, Indian Education Program, 1988b.

Dana, Richard H., "Intelligence Testing of American Indian Children: Sidesteps in Quest of Ethical Practice." White Cloud Journal, 3:3, 35-43, 1984.

Davids, Brent Michael, and John Tippeconnic III, "Selected Dissertations in Indian Education (1972 to 1987)." Tempe: Center for Indian Education, Arizona State University, 1987. Mimeographed.

DeMontigny, Lionel, "Modern Psychology and the American Indian." Chapter in The American Indian Reader--Education. San Francisco: The Indian Historian Press, 1972.

Dorris, Michael, Personal Communication, March 28, 1989.

Fries, Judith E., "The American Indian in Higher Education, 1975-1976 to 1984-85." Washington, DC: Center for Education Statistics, ED, 1987.

Greenbaum, Paul, "The Number and Need for Native Americans in the Professions." Washington, DC: Office of Indian Education Deliverable #23, 1980.

Holmgren, Elizabeth, and Patricia Locke, "Indian Education Mission Statement and Policies." 25 C. F. R. 32.3, 32.4, October, 1979. Now Section 1123 of P. L. 100-297, 1988.

Intertribal Agriculture Council, Testimony to Subcommittee on Appropriations, Interior and Related Agencies, U. S. Congress, March, 1989.

Lam, Tony C. M., "Testing, Opportunity Allocation, and Asian and Pacific Americans." Proceedings of a Hearing co-sponsored by the National Commission on Testing and Public Policy and the National Association for Asian and Pacific American Education, 1988.

McDiarmid, G. L., "The Hazards of Testing Indian Children." ERIC Document ED 055 692, 1972, CRESS.

MacNamara, Patricia Porter, "American Indians in Higher Education: A Longitudinal Study of Progress and Attainment." Ph. D. dissertation, UCLA, 1982.

Martin, Calvin, "Keepers of the Game." Berkeley: University of California Press, 1988.

May, Philip, "Social, Economic Changes Seen as Crucial Factors for Alarming Rise in Suicide." National Indian Health Reporter, 4:13, 1989.

Native American Scholarship Fund, Inc. (NASF), "Annual Report." 1977.

National Indian Training and Research Center, "Survey of Bilingual Education Needs of Indian Children." Indian Education Resources Center, Research and Evaluation Report Series No. 36, 1975.

Olivas, Michael, "The Dilemma of Access." Washington, DC: Howard University Press, 1980.

Paisley, William, and Matilda Butler-Paisley, "The Status of Education Research and Development in the United States." Washington, DC: National Institute of Education, 1976.

Shaw, Carl, BIA Public Information Officer, Personal Communication, March 28, 1989.

Standing Rock Sioux Tribe, "Review of the Report on BIA Education." July 13, 1988a.

Standing Rock Sioux Tribe, "Resolution No. 143-88." July 6, 1988b.

Tsang, Chui Lim, "Informal Assessment of Asian Americans: A Cultural and Linguistic Mismatch?" Paper presented at a Hearing co-sponsored by the National Commission on Testing and Public Policy and the National Association for Asian and Pacific American Education, 1988.

Tierney, Bill, Professor, Pennsylvania State University, Personal Communication, March 20, 1989.

U. S. Bureau of Indian Affairs, Indian Education Resources Center, Research and Evaluation Report Series No. 20-A, "Higher Education Evaluation. Student Characteristics and Opinions." Albuquerque: the Center, 1973.

U. S. Bureau of Indian Affairs, "Indian Service Population and Labor Force Estimates." Washington, DC: the Bureau, 1981.

U. S. Bureau of Indian Affairs, "Excellence in Indian Education Through the Effective Schools Process." Washington, DC: the Bureau, 1988a.

U. S. Bureau of Indian Affairs, "Report to Congress on BIA Agriculture-Range Programs." Washington, DC: the Bureau, 1988b.

U. S. Bureau of Indian Affairs, "Budget Justifications, 1990." Washington, DC: the Bureau, 1989a.

U. S. Bureau of Indian Affairs, "Indian Service Populations and Labor Force Estimates." Washington, DC: the Bureau, 1989b.